

Federal Communications Commission

FCC 97-82

MAR 26 4 12 PM '97

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C.

In the Matter of	)	
	)	
Rulemaking To Amend Parts 1, 2, 21, and 25	)	CC Docket No. 92-297
Of the Commission's Rules to Redesignate	)	
The 27.5-29.5 GHz Frequency Band, To	)	
Reallocate the 29.5-30.0 GHz Frequency	)	
Band, To Establish Rules and Policies for	)	
Local Multipoint Distribution Service	)	
And for Fixed Satellite Services	)	
	)	
Petitions for Reconsideration of the	)	
Denial of Applications for Waiver of the	)	
Commission's Common Carrier Point-to-	)	
Point Microwave Radio Service Rules	)	
	)	
Suite 12 Group Petition for	)	PP-22
Pioneer Preference	)	

**SECOND REPORT AND ORDER,  
ORDER ON RECONSIDERATION, AND  
FIFTH NOTICE OF PROPOSED RULEMAKING**

Adopted: March 11, 1997

Released: March 13, 1997

**Comment Date:** April 21, 1997  
**Reply Comment Date:** May 6, 1997

By the Commission: Commissioners Quello and Ness issuing separate statements;  
Commissioner Chong approving in part, dissenting in part, and issuing a  
statement.

## TABLE OF CONTENTS

	Paragraph
I. INTRODUCTION .....	1
A. Overview .....	1
B. Background .....	5
C. Summary of Decision .....	13
1. LMDS Service Rules and Related Decisions .....	13
2. Competitive Bidding Rules and Procedures .....	14
II. LOCAL MULTIPOINT DISTRIBUTION SERVICE .....	15
A. Designation of Spectrum in 31 GHz Band .....	15
1. Background .....	15
2. Comments .....	20
3. Decision .....	35
a. Summary .....	35
b. Need and Usefulness of 31 GHz Spectrum for LMDS .....	38
c. Extent of Incumbent Licenses and Services in 31 GHz Band .....	44
(1) Number of Licensees .....	44
(2) Scope of Existing 31 GHz Services .....	52
(3) Traffic Control Systems .....	57
d. Basis for Redesignation: Protection Status of Incumbents and Public Interest .....	63
e. Incumbent Accommodation Alternatives .....	69
(1) Co-Existence with LMDS .....	69
(2) Relocation to 23 GHz Band .....	72
(3) Proposed Band-Sharing Plans .....	74
f. Spectrum Sharing Plan .....	79
(1) Segmentation .....	80
(2) LMDS Use and Protection .....	85

(3) Incumbent Licensee Use and Protection .....	88
(4) Relocation and Modification Procedures .....	91
(5) Applications for New Authorizations and for Modifications or Renewals of Existing Licenses .....	94
(6) Rules .....	104
g. Application of NEPA .....	106
B. Licensing of Spectrum .....	116
1. Number of Licenses per Geographic Area .....	116
a. Background; Comments .....	116
b. Decision .....	125
2. Size of Geographic Service Areas .....	132
a. Background; Comments .....	132
b. Decision .....	135
3. Spectrum Disaggregation and Geographic Partitioning .....	140
a. Background; Comments .....	140
b. Decision .....	144
4. Eligibility .....	146
a. Background .....	146
(1) NPRMs .....	146
(2) Comments .....	152
b. Decision .....	157
(1) Basis for Eligibility Restrictions .....	157
(2) Effects of LEC and Cable Company Eligibility on Competition: 1,150 Megahertz Licenses .....	162
(a) Market Structure for Local Exchange Telephony and MVPD ....	163
(b) LMDS As a Source of Competition .....	170
(c) Usefulness of Short-Term Eligibility Restrictions .....	176

(3) Effects of LEC and Cable Company Eligibility on Competition: 150 Megahertz Licenses .....	182
(4) Effects of CMRS and MMDS Eligibility on Competition .....	183
c. Eligibility Rules. ....	185
5. Flexible Service and Framework for Licensing .....	200
a. Scope of Services .....	200
(1) Background; Comments .....	200
(2) Decision .....	205
(a) Flexible Service Definition .....	205
(b) Telecommunications Services .....	210
(c) Video Programming Distribution and Other Non-Common Carrier Services .....	213
b. Regulatory Framework for Licensing LMDS .....	218
(1) Background; Comments .....	218
(2) Decision .....	221
6. Application and Operating Rules and Procedures for LMDS .....	228
a. Background; Decision .....	228
b. Application Forms .....	231
c. Public Notice .....	236
d. Foreign Ownership Restrictions .....	240
e. Initial Applications .....	244
f. Changing Regulatory Status .....	245
(1) Amendments to Pending Applications .....	246
(2) Modification Applications .....	248
g. Discontinuance, Reduction, or Impairment of Service .....	252
h. Fees .....	256
i. Equal Employment Opportunity .....	258
j. License Terms .....	259
k. Renewal Expectancy .....	260
l. Construction Requirements .....	263

(1) Background; Comments .....	263
(2) Decision .....	266
C. Technical Rules and Requirements. ....	273
1. Frequency Coordination .....	273
a. Background; Comments .....	273
b. Decision .....	277
2. Polarization .....	282
a. Background; Comments .....	282
b. Decision .....	284
3. Equivalent Isotropically Radiated Power .....	285
a. Background; Comments .....	285
b. Decision .....	289
4. RF Emissions .....	292
5. Spectral Efficiency .....	297
a. Background; Comments .....	297
b. Decision .....	301
D. Competitive Bidding Rules and Procedures .....	302
1. Use of Competitive Bidding .....	302
a. Background; Comments .....	302
b. Decision .....	304
2. Competitive Bidding Issues .....	307
a. Competitive Bidding Design for LMDS Licenses .....	307
(1) Background; Comments .....	307
(2) Decision .....	309

b. LMDS Bidding Procedures .....	311
(1) Bid Increments and Tie Bids .....	312
(2) Stopping Rules .....	315
(3) Duration of Bidding Rounds .....	317
(4) Bid Withdrawals .....	318
(5) Activity Rules .....	319
c. Procedural and Payment Issues .....	327
(1) Upfront Payments .....	328
(2) Down Payments, Long-Form Applications, and Payment in Full .....	331
(3) Bid Withdrawal, Default, and Disqualification Payments .....	333
d. Regulatory Safeguards .....	337
(1) Transfer Disclosure .....	337
(2) Anti-Collusion Rules .....	338
e. Treatment of Designated Entities .....	340
(1) Overview .....	340
(2) Installment Payments, Upfront Payments, Down Payments, and Unjust Enrichment .....	344
(3) Bidding Credits and Unjust Enrichment .....	355
(4) Rural Telephone Companies .....	362
E. Preemption .....	364
1. Background; Comments .....	364
2. Decision .....	370
a. Non-Common Carrier Services and Video Programming .....	374
(1) General Standards .....	374
(2) Over-the-Air Reception Devices for Video Programming .....	376
b. Common Carrier Services and Telecommunications Services .....	378
(1) General Standards .....	378
(2) Personal Wireless Service Facilities .....	381

III. ORDER ON RECONSIDERATION OF WAIVER	
APPLICATION DENIALS .....	383
A. Background; Pleadings .....	383
B. Decision .....	388
1. Effect on Assigned Users .....	391
2. Evaluation of Public Interest Arguments .....	397
3. Claims Regarding Nature of Services and Types of Applicants .....	402
IV. FIFTH NOTICE OF PROPOSED RULEMAKING .....	407
A. Introduction .....	407
B. Discussion .....	410
1. In General .....	410
2. Available License Area .....	412
3. Minimum or Maximum Disaggregation Standards .....	414
4. Combined Partitioning and Disaggregation .....	415
5. Construction Requirements .....	416
6. License Term .....	418
7. Competitive Bidding Issues .....	420
8. Licensing Issues .....	423
V. PROCEDURAL MATTERS .....	425
A. Regulatory Flexibility Analyses .....	425
B. Paperwork Reduction Analyses .....	428
C. Ex Parte Presentations .....	433
D. Pleading Dates .....	434
E. Further Information .....	435
VI. ORDERING CLAUSES .....	436
APPENDIX A: Final Rules	
APPENDIX B: List of Existing Governmental and Private Business 31 GHz Licensees	
APPENDIX C: Initial Regulatory Flexibility Analysis	
APPENDIX D: Final Regulatory Flexibility Analysis	
APPENDIX E: List of Pleadings	

## I. INTRODUCTION

### A. Overview

1. This is the Second Report and Order in the Commission's ongoing proceeding to establish and license Local Multipoint Distribution Service (LMDS), a fixed broadband point-to-multipoint microwave service, in the 27.5-29.5 GHz band (28 GHz band). We adopt, in part, service rules proposed in the *First NPRM* and *Third NPRM* to govern the licensing and operations of LMDS.<sup>1</sup> We adopt, in part, competitive bidding rules proposed in the *Third NPRM* to select among mutually exclusive applications for LMDS. We also adopt, in part, proposals in the *Fourth NPRM* to redesignate spectrum in the 31.0-31.3 GHz band (31 GHz band) for LMDS and to impose eligibility restrictions on certain potential applicants.<sup>2</sup> We rule on petitions for reconsideration of the Commission's dismissal of waiver applications in the *First NPRM*. We also adopt a Fifth Notice of Proposed Rulemaking proposing specific procedural, operational, and administrative rules for the partitioning and disaggregation of LMDS licenses.<sup>3</sup>

2. Our decision today will open the door for a new broadband wireless service. The technology developed for use in this frequency band provides very high subscriber capacity for two-way video telecommunications. There is sufficient capacity in the proposed LMDS system designs to provide wireless competition to both local exchange carriers (LECs) and cable television systems, even in urban areas. In addition, based on the interest generated in

---

<sup>1</sup> Rulemaking to Amend Part 1 and Part 21 of the Commission's to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service: RM-7872, RM-7722, Applications for Waiver of the Commission's Common Carrier Point-to-Point Microwave Radio Service Rules, Suite 12 Group Petition for Pioneer's Preference: PP-22, University of Texas - Pan American Petition for Reconsideration of Pioneer's Preference Request Denial; Notice of Proposed Rulemaking, Order, Tentative Decision, and Order on Reconsideration, 8 FCC Rcd 557 (1993) (*First NPRM*); Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services: CC Docket No. 92-297, and Suite 12 Group Petition for Pioneer's Preference: PP-22; Third Notice of Proposed Rulemaking and Supplemental Tentative Decision, 11 FCC Rcd 53 (1995) (*Third NPRM*).

<sup>2</sup> Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, First Report and Order and Fourth Notice of Proposed Rulemaking, FCC 96-311, released July 22, 1996 (*First Report and Order and Fourth NPRM*).

<sup>3</sup> Comments filed in response to the *First NPRM*, *Third NPRM*, and *Fourth NPRM* and considered in the Report and Order are listed in Appendix E. We include an abbreviated name for each commenter and that abbreviation is used in this Report and Order.



LMDS by entrepreneurs in the United States, LMDS has attracted attention and support from both developed and developing countries around the world. LMDS developers offer the prospect of modern wireless telephone systems, video distribution, and other communications services to developing countries that do not have a wireline or cable infrastructure.

3. We defer issuing a final Order on our Tentative Decision and Supplemental Tentative Decision in the *Third NPRM* regarding CellularVision's<sup>4</sup> pioneer preference request in the *First NPRM*, and, instead, order the Wireless Telecommunications Bureau and the Office of Engineering and Technology to initiate a peer review process. Pursuant to Section 1.402(h) of the Commission's Rules,<sup>5</sup> the Chief, Office of Engineering and Technology, will select a panel of experts to review CellularVision's technology and recommend whether the request should be granted. The Commission will establish, conduct, and seek the consensus of the panel pursuant to the Federal Advisory Committee Act, and will evaluate its recommendations in light of all the submissions and comments in the record. In addition, panelists will have the authority to seek further information pertaining to preference requests and to perform field evaluations, as appropriate.

4. The Commission makes no warranties about the use of this spectrum for particular services. Applicants should be aware that a Commission auction represents an opportunity to become a Commission licensee in this service, subject to certain conditions and regulations. A Commission auction does not constitute an endorsement by the Commission of any particular services, technologies, or products, nor does a Commission license constitute a guarantee of business success. Applicants should perform their individual due diligence before proceeding, as they would with any new business venture.

## B. Background

5. In January 1991, the Commission granted the application of CellularVision's predecessor-in-interest, Hye Crest Management, Inc., for a license to provide LMDS in the 27.5-28.5 GHz frequency band covering the New York City Primary Metropolitan Statistical Area (NYPMSA).<sup>6</sup> The application was granted pursuant to waiver of the point-to-point rules in Part 21 in order to allow a fixed cellular point-to-multipoint operation for video distribution (wireless cable). The licensee was granted waivers of Sections 21.108 (directionalization and bandwidth requirements) and 21.700 (status eligibility).

---

<sup>4</sup> CellularVision is the successor-in-interest to Suite 12 Group and Hye Crest Management, Inc.

<sup>5</sup> 47 CFR § 1.402(h).

<sup>6</sup> Application of Hye Crest Management, Inc., for License Authorization in the Point-to-Point Microwave Service in the 27.5-29.5 GHz Band and Request for Waiver of the Rules, File No. 10380-CF-P-88, Memorandum Opinion and Order, 6 FCC Rcd 332 (1991) (*Hye Crest Management*).

6. CellularVision is currently providing competitive video distribution service within its assigned service area.<sup>7</sup> The licensee is also planning to implement telecommunications service. Approximately 975 applications similar to Hye Crest's were filed between February, 1991 and October, 1992 requesting waiver of the point-to-point rules so that point-to-multipoint service could be offered.<sup>8</sup> The Commission implemented a freeze on the acceptance of applications for common carrier point-to-point microwave service in the 28 GHz band in an order released October 29, 1992, to stop the filing of additional waiver applications.<sup>9</sup>

7. This rulemaking proceeding was initiated by three petitions for rulemaking concerning the 28 GHz band. Harris filed a petition for rulemaking requesting that the Commission channelize the 28 GHz band so that manufacturers of point-to-point equipment could standardize their systems. CellularVision filed a petition for rulemaking to change the point-to-point rules in a manner consistent with its waiver so that point-to-multipoint video distribution service could be offered on a regular basis in the band. In response to CellularVision's petition, Video/Phone filed a petition for rulemaking proposing a broadband, on-demand video telecommunications service.

8. The *First NPRM* was released on January 11, 1993. In it, the Commission considered the three petitions for rulemaking. The Commission tentatively concluded that redesignation of the fixed point-to-point use of the band to fixed point-to-multipoint could stimulate greater use of the 28 GHz band, and proposed detailed service rules (other than technical requirements) for implementation of LMDS. The Commission did not specify what type of service would have to be offered, indicating that the marketplace would best decide the use of this spectrum.

9. The Commission proposed two blocks of 1,000 megahertz each for LMDS. This proposal was based on CellularVision's existing technology.<sup>10</sup> However, because the 28 GHz

---

<sup>7</sup> CellularVision filed a timely renewal application for its commercial license for the NYPMSA. The Commission will commence processing CellularVision's renewal application by placing the application on Public Notice not later than 30 days after the release date of this Order. The new LMDS services rules will apply to this renewal application.

<sup>8</sup> The Commission denied the waiver requests and dismissed the applications in the *First NPRM*.

<sup>9</sup> Petitions for Redesignation of the Common Carrier Point-to-Point Microwave Radio Service Frequency Band 27.5-29.5 GHz, RM-7722, RM 7872, Order, 7 FCC Rcd 7201 (1992).

<sup>10</sup> CellularVision, by virtue of its license pursuant to waiver of the existing point-to-point rules, is the only operator licensed to provide LMDS in the United States; it is operating a system in Brighton Beach, New York City. CellularVision and TI have operating systems in other countries. Other LMDS developers are testing prototypes and components. A number of LMDS developers have experimental licenses.

band is allocated on a co-primary basis with the Fixed Satellite Service (FSS) for uplinks, the Commission also requested comment from satellite entities regarding the effect of redesignation and the proposed rules on any proposed satellite use of the band.

10. In response to the *First NPRM*, a number of different uses were proposed for terrestrial and satellite licensing. The Commission considered various proposals for the 28 GHz band and released the Second Notice of Proposed Rulemaking (*Second NPRM*) on February 14, 1994.<sup>11</sup> In it, the Commission found that the majority of parties supported the Commission's finding of widespread interest in point-to-multipoint uses of the 28 GHz band, but also found significant interest in the band on the part of the satellite industry. Accordingly, the Commission tentatively concluded that the public interest would be served by allowing both terrestrial and satellite providers to co-exist in the 28 GHz band, and decided to begin a negotiated rulemaking procedure to develop technical rules for sharing the band. As a result, the Commission established the LMDS/FSS 28 GHz Band Negotiated Rulemaking Committee (NRMC).

11. The NRMC met between July 26, 1994, and September 23, 1994; the Report of the Committee, dated September 23, 1994, was presented to the Commission and is included in the docket of this proceeding. The results of the work of the NRMC indicated that LMDS and FSS service uplinks (*i.e.*, the ubiquitous subscriber transceivers) are not technically able at this time to share the same spectrum, and that LMDS and feeder links to non-geostationary satellites operating in the Mobile Satellite Service (MSS) could share the same spectrum, subject to feasible sharing criteria. The Commission released the *Third NPRM* on July 28, 1995, that proposed to segment the 28 GHz band to permit both LMDS and FSS systems to operate and to accommodate feeder links for certain MSS systems in the band. We also proposed service and technical rules revised from the *First NPRM* and competitive bidding procedures to choose among mutually exclusive applications.

12. In the *First Report and Order and Fourth NPRM*, we adopted our proposal to designate band segments in the 28 GHz band for several types of wireless systems and cleared the way for our consideration in this Report and Order of the proposed, outstanding service and technical rules in order to implement LMDS. We proposed to designate the 31 GHz band for LMDS use on a primary protected basis. We sought comment on whether the Commission should adopt LMDS eligibility or use restrictions for incumbent LECs and cable operators within their respective geographic service areas. Those issues are resolved in this Order.

---

<sup>11</sup> Rulemaking to Amend Part 1 and 21 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service, RM-7872, RM-7722, Second Notice of Proposed Rulemaking, 9 FCC Rcd 1394 (1994) (*Second NPRM*).

## C. Summary of Decision

### 1. LMDS Service Rules and Related Decisions

13. Following is a summary of our actions with respect to LMDS service rules and related issues:

- Spectrum at 31.0-31.3 GHz is designated for LMDS, and incumbent licensees, other than Local Television Transmission Service (LTTS) licensees, are protected from harmful interference in the segments at 31.0-31.075 and 31.225-31.300 GHz.
- The LMDS spectrum (27.5-28.35 GHz, 29.1-29.25 GHz, and 31.0-31.3 GHz) will be licensed by the 493 Basic Trading Areas (BTAs) for a total of 1,300 GHz of spectrum per BTA.<sup>12</sup>
- Two licenses, for 1150 megahertz and for 150 megahertz, will be awarded for each BTA, for a total of 986 LMDS licenses.
- All licensees will be permitted to disaggregate and partition their licenses pursuant to our general Part 101 assignment and transfer rules.
- There are no restrictions on the number of licenses a given entity may acquire.
- Incumbent LECs and cable companies may not obtain in-region 1,150 megahertz licenses for three years.
- LMDS includes both common carrier and non-common carrier services, and an applicant may request authorization in a license on a common carrier basis, a non-common carrier basis, or on both a common carrier and a non-common carrier basis in a single license.
- LMDS licensees will be subject to liberal construction requirements.

---

<sup>12</sup> See Rand McNally Commercial Atlas & Marketing Guide 36-39 (123d ed. 1992). For a listing of the counties that comprise each BTA service area employed in Personal Communications Service (PCS), see Public Notice, Report No. CW-94-02 (Sept. 22, 1994). Rand McNally is the copyright owner of the Major Trading Area (MTA) and BTA Listings, which list the BTAs contained in each MTA and the counties within each BTA, as embodied in Rand McNally's Trading Area System MTA/BTA Diskette, and geographically represented in the map contained in Rand McNally's Commercial Atlas & Marketing Guide. The conditional use of Rand McNally copyrighted material by interested persons is authorized under a blanket license agreement dated February 10, 1994, and covers use by LMDS applicants. This agreement requires authorized users of the material to include a legend on reproductions (as specified in the license agreement) indicating Rand McNally ownership.

- All petitions for reconsideration of our decision to dismiss the waiver applications made by entities seeking a license under *Hye Crest Management* are denied.
- As noted,<sup>13</sup> we direct the Chief, Office of Engineering and Technology, to select a panel of experts to review CellularVision's technology and recommend whether its pioneer preference request should be granted.

## 2. Competitive Bidding Rules and Procedures

14. Following is a summary of our actions with respect to LMDS competitive bidding procedures:

- We will use simultaneous multiple round auctions for LMDS.
- We will announce by Public Notice prior to the LMDS auction the general guidelines for bid increments; we will use a simultaneous stopping rule; we will reserve the discretion to vary the duration of the bidding rounds or the interval at which bids are accepted; and we will use the Milgrom-Wilson activity rule with some variations.
- We delegate authority to the Chief, Wireless Telecommunications Bureau, to determine an appropriate calculation for the upfront payment, which the Bureau will announce by Public Notice.
- Winning bidders must supplement their upfront payments with a down payment sufficient to bring their total deposits up to 20 percent of their winning bid(s).
- There will be a substantial payment assessed if bidders withdraw a high bid, are found not be qualified to hold licenses after submitting a high bid, or default on payment of a balance due.
- We adopt installment payments and bidding credits for small entities participating in LMDS auctions.

## II. LOCAL MULTIPOINT DISTRIBUTION SERVICE

### A. Designation of Spectrum in 31 GHz Band

#### 1. Background

---

<sup>13</sup> See para. 3, *supra*.

15. In the *First Report and Order and Fourth NPRM*, we adopted a band plan that designated the spectrum in the 27.5-30.0 GHz band (28 GHz band plan) for LMDS systems. However, we required that LMDS licensees restrict their operations to hub-to-subscriber transmission in the 29.1-29.25 GHz segment.<sup>14</sup> Thus, LMDS licensees would not have 1,000 megahertz of unencumbered spectrum. We proposed to designate the 31.0-31.3 GHz (31 GHz) band for LMDS on a primary protected basis, in order to ensure that there is adequate two-way interactive capacity for the various proposed LMDS systems.<sup>15</sup> We requested comment on our proposal to designate LMDS as a primary "protected" use at 31 GHz, which means that LMDS providers would be entitled to interference protection from any other current authorized primary user of the band.<sup>16</sup> We requested comment on any technical issues that LMDS operators might encounter and possible measures for overcoming such technical difficulties associated with LMDS use.

16. We addressed the extent to which the 31 GHz band is encumbered by existing services and the possible impact of our proposal on these services. We found that existing use is light and concentrated in only a few areas, and that the majority of the licensees are local governments using the band to monitor and control traffic light facilities. We concluded that our proposal to make LMDS a protected service presupposes that incumbent licensees would continue to operate on an unprotected basis as secondary to LMDS. We found that overlaying LMDS operations in those areas where there are existing users raises potential interference problems that could degrade the utility of such systems, as well as adversely affect the new LMDS operations.<sup>17</sup>

17. Consequently, we proposed a number of alternatives for accommodating incumbent licensees without limiting the usefulness of the band for LMDS. We pointed out that in adopting the 31 GHz rules, we had directed entities that could not operate where there is a potential for harmful interference to operate instead in other bands where protection is provid-

---

<sup>14</sup> *Fourth NPRM*, at paras. 67-71, 97-98.

<sup>15</sup> *Id.* at para. 100.

<sup>16</sup> *Id.* We found that current rules governing licensing of spectrum in the 31 GHz band do not provide interference protection to any operations in the band. *Id.* at paras. 95, 96 (citing Sections 21.701(k), 74.602(h), 78.18(a)(5), 94.65(n), and 95.1(b) of the Commission's Rules, 47 CFR §§ 21.701(k), 74.602(h), 78.18(a)(5), 94.65(n), 95.1(B)). We explained that the service rules had been adopted to satisfy various types of short range, fixed and mobile communications requirements in the 31 GHz band. *Id.* at para. 99 (citing Establishment of a Spectrum Utilization Policy for the Fixed and Mobile Services Use of Certain Bands Between 947 MHz and 40 GHz, Gen. Docket No. 82-334, Second Report and Order, FCC 85-49, released Feb. 8, 1985) (*Spectrum Utilization Second Report and Order*)).

<sup>17</sup> *Id.* at paras. 99, 102-103.

ed. We stated that the 31 GHz services are permitted in the 23 GHz band and requested comment on the relocation of incumbent 31 GHz systems to that band. We asked whether incumbents should be entitled to any recovery for reasonable relocation costs and, if so, if LMDS applicants should be required to contribute to the recovery of such reasonable costs.<sup>18</sup>

18. Alternatively, we requested comment on whether there are any methods by which the incumbent services could be accommodated without delaying, causing interference to, or limiting the usefulness of LMDS at 31 GHz. We pointed out that although incumbent licensees have assumed all the risks of receiving interference, we nevertheless encouraged cooperation among the LMDS providers and existing licensees in exploring any methods that would allow the services to coexist without placing any economic or technical burdens on the LMDS providers. We also asked if there are existing mechanisms that will permit all of these services to share the entire band. Finally, we requested comment on whether we should accept any new applications, modifications, or renewal applications in the 31 GHz services in light of the proposal to establish a secondary status for these services.<sup>19</sup>

19. The following sections, in reviewing the record and presenting our decisions, address several broad issues. First, is there a need for 1,000 megahertz of unencumbered spectrum for LMDS and, if so, does the 31 GHz band offer the best means of achieving this in combination with spectrum at 28 GHz that we have already assigned to LMDS? Second, if we utilize spectrum at 31 GHz for LMDS, what is the nature of incumbent operations that will be affected and what is the level of incumbent usage? Third, how should we weigh the utility of these uses as compared to LMDS? Fourth, in making spectrum at 31 GHz available for LMDS, should incumbents be relocated to other bands, or should some form of sharing the 31 GHz spectrum be developed that balances the needs of incumbents and LMDS providers in a way that best serves the public interest?

## 2. Comments

20. Support for our proposal to redesignate, on a primary protected basis, the 31 GHz band for LMDS is expressed by a variety of proponents of LMDS. This includes satellite systems represented by GE, Hughes, LMC, and Motorola, which argue that allocating an additional 300 megahertz of spectrum for LMDS use is important to satisfy their spectrum requirements and promote innovative satellite networks with a wealth of high-speed,

---

<sup>18</sup> *Id.* at para. 102.

<sup>19</sup> *Id.* at paras. 103-104.

broadband, interactive services on demand within the United States and around the globe.<sup>20</sup> They state that the additional unencumbered spectrum for LMDS will solve concerns created by the *First Report and Order*, in which we provided that 150 of the 1,000 megahertz in 28 GHz would be shared on a co-primary basis with NGSO/MSS feeder links.

21. Support also is filed in comments of various groups and associations on behalf of their members, including PTV, Ad Hoc RTG, and WCA. PTV generally supports the availability of the proposed spectrum for use by its public television station members.<sup>21</sup> Ad Hoc RTG argues that we should designate 300 megahertz because of significant demand for the two-way interactive services that LMDS can provide and that rural telephone companies seek to promote.<sup>22</sup> WCA points out that we correctly found that wireless cable operators, which it represents, could use the additional spectrum for two-way LMDS services to provide local telephone services in competition with local telephone companies.<sup>23</sup>

22. Support for allocating an additional 300 megahertz for LMDS also was filed in comments by HP, RioVision, and WebCel, which argue that the extra capacity is needed to ensure the economic viability of an interactive LMDS system and accommodate the two-way and symmetric broadband LMDS uses that are expected to compete with incumbent cable and telephony services.<sup>24</sup>

23. CellularVision submits extensive comments in support of our proposal, which it argues is an essential element of its efforts since 1991 to establish LMDS on sufficient spectrum to develop the multiple potential uses for LMDS that are not yet ascertained.<sup>25</sup> CellularVision initiated LMDS under the Pioneer's Preference authorized in the *First NPRM*, and anticipates offering consumers the full range of two-way services intended by designating additional spectrum for LMDS. Its affiliate, CVTT, states that it developed the multi-faceted high-tech LMDS technology and urges we promptly designate 31 GHz for LMDS so that

---

<sup>20</sup> GE Comments to *Fourth NPRM* at 1-3; Hughes Comments to *Fourth NPRM* at 2; LMC Comments to *Fourth NPRM* at 3-4; Motorola Reply Comments to *Fourth NPRM* at 4.

<sup>21</sup> PTV Comments to *Fourth NPRM* at 3.

<sup>22</sup> Ad Hoc RTG Comments to *Fourth NPRM* at 7-8.

<sup>23</sup> WCA Comments to *Fourth NPRM* at 1-3.

<sup>24</sup> HP Comments to *Fourth NPRM* at 2; RioVision Comments to *Fourth NPRM* at 1; WebCel Reply Comments to *Fourth NPRM* at 18-19.

<sup>25</sup> CellularVision Comments to *Fourth NPRM* at 7-8; CellularVision Reply Comments to *Fourth NPRM* at 6-7.



industry will develop the new equipment and applications to create commercially viable uses with the 28 GHz spectrum.<sup>26</sup> Other developers of LMDS that submit comments in support are Endgate, M/A-COM, TI, and Titan. They urge us to promptly designate the additional spectrum in 31 GHz to provide the technology sector with the assurance to develop and implement the services intended for LMDS.<sup>27</sup>

24. In response to our request for comments on the technical adaptability of the band, ComTech states that equipment costs would be higher if the 31 GHz band is used rather than 1 gigahertz of contiguous spectrum, because multiple antennas would be required rather than only one.<sup>28</sup> RioVision is concerned as to what additional equipment may be required for two-way transmissions in 31 GHz and how much the additional equipment will cost.<sup>29</sup> However, CellularVision and CVTT assert that leading LMDS manufacturers, such as Philips, Titan, and M/A-COM, are expected promptly to develop commercially viable applications and equipment for use of the 31 GHz band in conjunction with their equipment for the 28 GHz band.<sup>30</sup> However, they request that LMDS licensees be given the flexibility to deploy services that can use the 31 GHz spectrum until the technology is developed for LMDS uses. M/A-COM and Titan confirm that they intend to commit research and development resources to develop commercially viable hardware to be used in connection with the 28 GHz LMDS systems.<sup>31</sup> Endgate asserts that the technical solution for antennas and active electronics is more difficult to design and produce if the return link is within the 31 GHz band, but that solutions can be readily developed once we designate the spectrum.<sup>32</sup>

25. In response to our request for comments on proposals for accommodating incumbent services authorized under the existing 31 GHz services, several of the comments argue that no alternative provisions for protecting them from interference are warranted because incumbent licenses are issued on a non-protected basis and thus they are secondary to any other

---

<sup>26</sup> CVTT Comments to *Fourth NPRM* at 5.

<sup>27</sup> Endgate Comments to *Fourth NPRM* at 1; M/A-COM Comments to *Fourth NPRM* at 4; TI Reply Comments to *Fourth NPRM* at 1-4; Titan Reply Comments to *Fourth NPRM* at 1.

<sup>28</sup> ComTech Comments to *Fourth NPRM* at 2.

<sup>29</sup> RioVision Comments to *Fourth NPRM* at 1.

<sup>30</sup> CellularVision Comments to *Fourth NPRM* at 5, 8; CVTT Comments to *Fourth NPRM* at 5.

<sup>31</sup> M/A-COM Reply Comments to *Fourth NPRM* at 4; Titan Reply Comments to *Fourth NPRM* at 1.

<sup>32</sup> Endgate Comments to *Fourth NPRM* at 1.

service that may operate on the band.<sup>33</sup> ComTech contends that if these licensees cannot operate on a non-interference basis, it is their legal and financial responsibility to correct that interference.<sup>34</sup> GE argues that they should be required to terminate operations or move to another band if it is technically infeasible for current systems to coexist with LMDS.<sup>35</sup>

26. CellularVision and TI argue that the licensees knowingly accepted such non-protected licenses and have no legitimate expectation of protection in the face of harmful interference from LMDS.<sup>36</sup> Hughes argues that our proposal does not alter the legal standing of incumbent licensees.<sup>37</sup> ComTech, RioVision, and TI object to any compensation if such licensees are relocated, inasmuch as they are secondary users that must bear the impact of any interference problems, and to any applications for licensing of such services or, as TI further argues, any grandfathering of existing licensees.<sup>38</sup>

27. CellularVision, Endgate, and HP support our suggestion for cooperation among LMDS interests and incumbent 31 GHz licensees to explore methods for allowing both technologies to coexist on the 31 GHz band. HP is concerned about displacing existing services, particularly local municipalities using the spectrum for traffic control, and suggests alternatives that include splitting 31 GHz into two bands, establishing criteria for sharing that eliminates potential interference, and relocating traffic signal systems to 28 GHz.<sup>39</sup> On reply, CellularVision submits a plan for sharing the band with incumbent users.<sup>40</sup> Endgate submits another plan based on different segmentation for sharing the band with incumbents.<sup>41</sup>

---

<sup>33</sup> CellularVision Comments to *Fourth NPRM* at 9; CellularVision Reply Comments to *Fourth NPRM* at 6; ComTech Comments to *Fourth NPRM* at 7; GE Comments to *Fourth NPRM* at 3; Hughes Comments to *Fourth NPRM* at 2; Hughes Reply Comments to *Fourth NPRM* at 2; RioVision Comments to *Fourth NPRM* at 2; TI Reply Comments to *Fourth NPRM* at 6.

<sup>34</sup> ComTech Comments to *Fourth NPRM* at 7.

<sup>35</sup> GE Comments to *Fourth NPRM* at 3.

<sup>36</sup> CellularVision Reply Comments to *Fourth NPRM* at 4; TI Reply Comments to *Fourth NPRM* at 6-7.

<sup>37</sup> Hughes Reply Comments to *Fourth NPRM* at 3.

<sup>38</sup> ComTech Comments to *Fourth NPRM* at 7; RioVision Comments to *Fourth NPRM* at 2; TI Reply Comments to *Fourth NPRM* at 10-11.

<sup>39</sup> HP Comments to *Fourth NPRM* at 3.

<sup>40</sup> CellularVision Reply Comments to *Fourth NPRM* at 8-10.

<sup>41</sup> Endgate Reply Comments to *Fourth NPRM* at 1.

28. Opponents of our proposal to redesignate 31 GHz spectrum for LMDS include a variety of proponents of existing 31 GHz services, as identified below. As a general matter, parties opposing our proposal argue that we underestimated the extent and importance of the incumbent 31 GHz services and licensees, in particular those governmental entities using the spectrum for traffic and air pollution control. They argue that the impact of LMDS operations as proposed would undermine all existing operations and be contrary to the public interest. Most oppose any alternative that requires them to leave the 31 GHz band and subjects them to interference from LMDS. Most request that a plan be developed that allows them to continue existing services at least in part of the band while providing LMDS with the spectrum needed.

29. Several governmental entities submit comments in support of the continued use of 31 GHz for traffic control systems. The municipalities include the Cities of Palm Springs, San Diego, and Topeka, which are licensees, and the City of Long Beach and the City and County of Honolulu, which are not licensees. They all have purchased and installed 31 GHz radio links to interconnect signalized intersections with a Traffic Management Center in systems that manage traffic incidents, congestions, and synchronization. They intend to extend the systems into growing areas. They argue that their 31 GHz microwave systems are cost-effective and inexpensive to install and maintain. They request that we maintain their ability to use the frequency for their traffic control systems and that we not permit LMDS to interfere with such services, which would create undue hardships. Many of the systems are part of Intelligent Transportation Systems (ITS) promoted under Federal transportation goals.<sup>42</sup>

30. Comments also were filed on behalf of the State of California (by MSAPRC) and by Nevada DOT. MSAPRC argues that it has funded signal synchronization projects in 31 GHz along heavily traveled, multijurisdictional arterial highways in Southern California as a specific air pollution reduction strategy. Nevada DOT is replacing an outdated traffic system throughout the metropolitan Las Vegas Area, for which applications are pending, with a system that relies on 31 GHz channels for surveillance. MSAPRC and Nevada DOT argue that the harmful interference from LMDS would seriously impair such systems and they request we adopt a plan that permits 31 GHz systems to continue to operate and grow.<sup>43</sup>

---

<sup>42</sup> Honolulu Comments to *Fourth NPRM* at 1; Long Beach Comments to *Fourth NPRM* at 3-4; Palm Springs Comments to *Fourth NPRM* at 2; San Diego Comments to *Fourth NPRM* at 1-2; Topeka Comments to *Fourth NPRM* at 1.

<sup>43</sup> MSAPRC Comments to *Fourth NPRM* at 1-2. Nevada DOT filed comments in a letter on September 5, 1996, which also summarized an *ex parte* contact, after the period closed for the filing of comments. Nevada DOT Letter of Sept. 5. We accept these late-filed comments as part of the record in order to ensure a complete assessment of issues raised in this proceeding.

31. Comments also were filed by USDOT, through its ITS Joint Program Office, and by SBA. USDOT asserts that it and area governments are making major investments in new technologies to alleviate traffic congestion and that 31 GHz point-to-point microwave links are a significant tool. SBA argues that in the Initial Regulatory Flexibility Analysis (IRFA) in the *Fourth NPRM*, we underestimated the number of small entities to be affected by our proposed redesignation of 31 GHz and failed to consider alternatives to displacing incumbent licensees. They oppose our proposal to redesignate the entire 31 GHz band exclusively to LMDS as against the public interest and Federal goals promoting traffic management systems and clean air.<sup>44</sup>

32. IMSA is an organization that promotes the development and use of electrical signaling and communications systems for public safety. Its members include many governmental agencies. IMSA submits extensive comments opposing the factual and legal basis of our proposal. ITE is an organization of transportation professionals that argues that our proposal would adversely impact the development of ITS being promoted by USDOT as an alternative traffic management tool. IMSA and ITE request that we consider alternatives to displacing 31 GHz services and argue that continued access to the band is in the public interest.<sup>45</sup>

33. Four developers and sellers of equipment submit comments opposing our proposal. Sierra is the leading developer and supplier of 31 GHz technology. It submits extensive comments to demonstrate that our proposal is against the public interest and urging that 31 GHz services be continued. Comstat states that it recently installed three systems supplied by Sierra and has invested in spare radio systems. Sunnyvale specializes in traffic control equipment and asserts that Sierra just completed development for it of a microwave unit that is now available in the market to meet demands for 31 GHz technology. They argue that our proposed redesignation would render their equipment useless, because of the harmful interference from LMDS, and urge us to permit 31 GHz services to continue.<sup>46</sup> ICE-G develops systems

---

<sup>44</sup> SBA Reply Comments to *Fourth NPRM* at 2-5. USDOT filed the comments in a letter on September 26, 1996, after the close of the period for comments. USDOT Letter of Sept. 26. We accept these late-filed comments as part of the record in order to ensure a complete evaluation of issues raised in this proceeding.

<sup>45</sup> IMSA Reply Comments to *Fourth NPRM* at 16-19. ITE filed comments in a letter on September 9, 1996, after the close of the period for the filing of comments in this proceeding. ITE Letter of Sept. 9, 1996. We accept these late-filed comments in the record in order to ensure we have a complete record for our determinations.

<sup>46</sup> Comstat Comments to *Fourth NPRM* at 2-3; Sierra Comments to *Fourth NPRM* at 1-6; Sierra Reply Comments to *Fourth NPRM* at 1-2; Sunnyvale Comments to *Fourth NPRM* at 1-5; Sunnyvale Reply Comments to *Fourth NPRM* at 1-5.

operating at 28 GHz and 40 GHz, and opposes designation of 31 GHz for LMDS on the grounds that 40 GHz is better suited because of the equipment it has developed.<sup>47</sup>

34. In response to our proposals for alternatives and for cooperation to achieve some methods for coexisting, most comments request that we adopt a band-sharing plan that preserves a part of the band for continuation of 31 GHz services. On reply, Sierra submits a band-sharing plan based on different segmentation and provisions than that of CellularVision.<sup>48</sup> The plan is supported by IMSA, ITE, SBA, Sunnyvale, and USDOT.<sup>49</sup>

### 3. Decision

#### a. Summary

35. We conclude that it is in the public interest to protect incumbent licensees insofar as it is possible to maintain the *status quo* in their existing operations, while allowing LMDS access to the entire spectrum to initiate new communications service with wide-ranging advanced technologies. We achieve this public interest objective through the following actions, findings, and decisions in the succeeding sections of this Order.

36. First, we designate 300 megahertz of spectrum in the 31 GHz band to LMDS. Second, we conclude that incumbent licensees in the 31 GHz band do not presently use the spectrum intensively, but that certain uses by State and local government agencies provide important services to the public. Third, we find that we must carefully balance these incumbent uses and the potential value of LMDS in deciding upon the best means of resolving issues in this proceeding in the public interest. Fourth, we adopt a plan for use of the spectrum that includes features of plans suggested in the record. We find that incumbents cannot co-exist in the 31 GHz band without protection from LMDS, and that relocation to the 23 GHz band or any other band is neither practical nor suitable. Most commenters support a band-sharing plan that accords incumbents some protection from LMDS, while allowing LMDS to be designated to use the spectrum.

37. Fifth, although LMDS is accorded protection throughout the spectrum as we proposed, we impose on LMDS the requirement to protect incumbent licensees from harmful interference in the two 75 megahertz bands at each end. Incumbent and LMDS operators in

---

<sup>47</sup> ICE-G Comments to *Fourth NPRM* at 1-3; ICE-G Reply Comments to *Fourth NPRM* at 1.

<sup>48</sup> Sierra Reply Comments to *Fourth NPRM* at 12-13.

<sup>49</sup> ITE Letter of Sept. 9, 1996; IMSA Reply Comments to *Fourth NPRM* at 17; SBA Reply Comments to *Fourth NPRM* at 3; Sunnyvale Reply Comments to *Fourth NPRM* at 2; USDOT Letter of Sept. 26, 1996.

the two outer bands will negotiate to establish the necessary protections for each other. Sixth, incumbents in the middle 150 megahertz, except those with temporary authorizations, may relocate to the outer bands by modifying their licenses within 15 days after the effective date of rules adopted in this Order,<sup>50</sup> or pursue alternative service options. Finally, we do not permit new applications to be filed under our current 31 GHz licensing rules, and pending applications are dismissed. Incumbent licensees may continue their operations within the terms of their licenses, as long as they do not expand or increase services. While they may renew their licenses, they are limited in their modifications.

**b. Need and Usefulness of 31 GHz Spectrum for LMDS<sup>51</sup>**

38. Sierra argues that our proposed designation of 31 GHz for LMDS is both excessive and premature.<sup>52</sup> It contends that LMDS proponents have not justified a present need for 300 megahertz at 31 GHz nor the technical suitability for the band. It asserts that the 1,000 megahertz allotted on a primary or co-primary basis in the 28 GHz band is ample for LMDS at this early stage of its development. Sierra contends that wireless cable and local exchange services must compete with highly advanced systems, and that the likelihood of success for LMDS entry in these markets, as well as other proposed LMDS uses, is too conjectural to warrant taking 31 GHz spectrum away from its current users. Sierra requests that we continue our efforts described in the *First Report and Order* to acquire access to spectrum below 27.5 GHz for LMDS.<sup>53</sup> ICE-G requests that we also reconsider designating LMDS at 40 GHz, which it argues is well suited for LMDS uses.<sup>54</sup>

39. In the *First Report and Order*, we concluded that additional spectrum was needed outside the 28 GHz band for LMDS because the comprehensive 28 GHz band plan we adopted did not provide the 1 gigahertz of unencumbered spectrum as originally proposed. As CellularVision states in its comments, the LMDS proponents consistently have demonstrated throughout this proceeding that each LMDS operator must have at least 1 gigahertz of unen-

---

<sup>50</sup> See paras. 91-92, 440, *infra*.

<sup>51</sup> We note as a preliminary matter that we also sought comment regarding how to assign the additional spectrum in the 31 GHz band in connection with determining the licensing rules for LMDS. These comments are considered in the next section of this Order, in which we decide the number of licenses for geographic areas in which LMDS is licensed. Nevertheless, we also take the comments into account in this section to the extent they are pertinent to deciding whether and how to reallocate the 31 GHz band to LMDS.

<sup>52</sup> Sierra Comments to *Fourth NPRM* at 10-11.

<sup>53</sup> *First Report and Order*, at para. 39.

<sup>54</sup> ICE-G Comments to *Fourth NPRM* at 3.

cumbered spectrum. This is necessary to ensure LMDS can provide a competitive broadband alternative to local exchange services offered by local telephone companies and to video programming services provided by wireline cable operators.<sup>55</sup>

40. We summarize in paragraphs 20 through 23, *supra*, all the LMDS proponents that support our proposal, and they emphasize the necessity of acquiring additional unencumbered spectrum because 150 megahertz of spectrum in the 1,000 megahertz block originally proposed has been limited to downstream communications. They describe the experimentation and advancements in two-way services that require the 300 megahertz and that achieves our goal for the full range of telecommunications and video services intended. We conclude that it has been sufficiently demonstrated that LMDS has greater potential in the marketplace if we provide the additional spectrum we proposed for its licensing.

41. The comments do not reflect any technical problems that are obstacles to use of the 31 GHz band by LMDS operators, nor the need for any measures to facilitate their deployment of services in the band. While LMDS proponents acknowledge that no LMDS equipment has been specifically designed for the band, equipment manufacturers claim they are committed to developing the necessary hardware once we designate the 31 GHz band for LMDS use.<sup>56</sup> In addition, HP contends that non-contiguous spectrum will enable interactive broadband services without the need for costly diplexers and filters in the customer premises equipment.<sup>57</sup> Contrary to Sierra's contentions, we find that 31 GHz is suitable for LMDS and can readily be used for LMDS to compete with the full range of telecommunications and video programming services if we provide the necessary spectrum.

42. Several commenters support an alternative allocation of adjacent spectrum below 27.5 GHz for LMDS to provide a single contiguous band.<sup>58</sup> We considered this in the *First Report and Order* where we directed Commission staff to continue discussions with NTIA to explore the feasibility of shared use or reallocation of some portion of this band from the

---

<sup>55</sup> CellularVision Reply Comments to *Fourth NPRM* at 5.

<sup>56</sup> M/A-COM Comments to *Fourth NPRM* at 4; Titan Reply Comments to *Fourth NPRM* at 1; CVTT Comments to *Fourth NPRM* at 5; CellularVision Comments to *Fourth NPRM* at 5, 8. ComTech, Endgate, and RioVision are concerned about the costs of additional equipment to use the band, but they uniformly support access to the band. ComTech Comments to *Fourth NPRM* at 1; Endgate Comments to *Fourth NPRM* at 1; RioVision Comments to *Fourth NPRM* at 1.

<sup>57</sup> HP Comments to *Fourth NPRM* at 2.

<sup>58</sup> See, e.g., CellularVision Comments to *Fourth NPRM* at 5-6; Sierra Comments to *Fourth NPRM* at 6.

Government for commercial usage.<sup>59</sup> No further developments have occurred since that time to make the requested spectrum available to us for designation for LMDS use. We believe that it would not be in the public interest to delay the licensing of LMDS and the development of LMDS equipment while we explore potentially speculative options for additional spectrum. However, we continue to support these efforts to explore the availability of additional spectrum.

43. As for the 40 GHz band, we considered the viability of the band for LMDS in the *First Report and Order* and concluded that, while its immediate use was not established, we would address possible long term uses in a pending proceeding that is reviewing frequencies above 40 GHz.<sup>60</sup> No commenter has presented compelling reasons for us to revisit the issue. Insofar as other bands apart from 31 GHz are available at this time to assign to LMDS, we find, based on our assessment of possible alternatives and based upon the record established in this proceeding, that no adequate alternatives presently exist that would suffice for the expeditious development of services contemplated for LMDS. Sierra and other commenters opposing our proposed approach have failed to identify any alternative sources of spectrum that could reasonably be considered sufficient to meet our stated objectives in licensing LMDS.

#### c. Extent of Incumbent Licenses and Services in 31 GHz Band

##### (1) Number of Licensees

44. In the *Fourth NPRM*, we concluded that existing usage in the 31 GHz band appears to be relatively light, geographically concentrated, and principally engaged in traffic signal communications.<sup>61</sup> In providing a description and estimate in the IRFA of the small entities that might be affected by our proposals, we concluded that the majority would be small entities that are municipalities or other local governmental entities. We stated that there are 27 such incumbent licensees in the band and we estimated that 25 or 26 were small entities based on the SBA definition of small municipalities, which have populations less than 50,000.<sup>62</sup> Sierra, IMSA, SBA, and other commenters opposing our proposed redesignation of 31 GHz argue that we have significantly underestimated the number of licensees, as well as the volume and extent of the current 31 GHz services nationwide.

---

<sup>59</sup> *First Report and Order*, at para. 39.

<sup>60</sup> *Id.* at para. 14.

<sup>61</sup> *Id.* at para. 99.

<sup>62</sup> *Id.*, Appendix C.



45. Specifically, Sierra states that we overlooked several licensees in the list of licensees that were mailed copies of the *Fourth NPRM* and argues that our data base appears to be incomplete.<sup>63</sup> IMSA submits a list of a number of current 31 GHz licensees that reflects 70 rows of names, generated from the Commission's data base, and asserts that there actually may be more.<sup>64</sup> Sunnyvale submits a list of more than 40 electronic traffic control modules it has installed, and another list of more than 40 locations where a larger number of installations are in process. It further argues that the license count does not reflect the inherent time delay in applying the technology to the traffic control environment.<sup>65</sup> ITE and USDOT assert that about 40 communities have installed, or are installing, 31 GHz traffic control systems.<sup>66</sup> SBA asserts that it was informed by Sierra that there may be as many as 100 incumbent licensees, both public and private, in this band. SBA submits a list prepared by Sierra of 27 dealers and resellers of Sierra's equipment, which is used by incumbent licensees.<sup>67</sup>

46. We agree with Sierra and the other commenters that the number of licensees we included in the IRFA of the *Fourth NPRM* did not reflect the total number of current licensees under the existing 31 GHz rules. Based on a review of our current data base, we find a total of 86 licensees operating at 122 stations. We note that the list of licensees submitted by IMSA is similar, but out-of-date and does not identify many of the licensees. Moreover, the list duplicates several licensees by identifying each application and counting it separately.

47. We clarify that, in the IRFA, we were considering the number of incumbent licensees that are small governmental entities that would be affected by our proposal to designate 31 GHz for LMDS, rather than all of the incumbent licensees that might be small entities. A review of our current database reveals that existing licenses have been issued for three categories of 31 GHz services, as follows:

- LTTS provided by a variety of telephone and other communications companies.
- Governmental services including traffic control provided by municipalities, counties, and States.
- Private business uses provided by a variety of businesses and groups.

---

<sup>63</sup> Sierra Comments to *Fourth NPRM* at 2.

<sup>64</sup> IMSA Reply Comments to *Fourth NPRM* at 8, Appendix A.

<sup>65</sup> Sunnyvale Comments to *Fourth NPRM* at 2.

<sup>66</sup> ITE Letter of Sept. 6, 1996; USDOT Letter of Sept. 26, 1996.

<sup>67</sup> SBA Reply Comments to *Fourth NPRM* at 4, Appendix.